

Proposal:

We live in a world that is inexorably interconnected, yet are made to live in systems founded on “us versus them” mentality. This essay will unpack how these systems have been developed and then, after dispelling some foundational misconceptions, will offer a fully holistic way forward.

The foundation of this holistic approach is one of microbes and decomposers. Historically prescribed to death and disease, when looked at in a new light are actually the rejuvenators of life. Our original atmosphere was created by relationships between these organisms and the answer to cleaning our air and water lies in the lessons they still embody.

To pull on these lessons, the attached essay envisions a new approach to systemic composting in a similar way to how we presently deal with recycling. While systemic composting exists in some states, this compost is only deployed to places of privilege: high end nurseries, well-funded organic farms, and wealthy neighborhood lawns. Further, countless tons of “waste” that could be composted is liquefied in landfills where it benefits no living organism. The new proposed program will divert these missing tons of organic waste from landfill and as a result deploy tons of compost specifically to neglected areas or “brownfields”. This effort will be compounded by the multitudinous benefits of native plant restoration.

In short, by using systematic compost to support the restoration of the soil microbiome and native plant regrowth, a wide array of planetary systems will be “un-bottlenecked”. The root systems of these plants (supported by the probiotics of compost) prevent soil erosion, clean ground water as it drains, provide food to birds and fish, capture carbon better than any man made technology, reinvigorate blighted areas, and generate ripples of positive biosphere change and even economic growth.

This essay will also address funding/start up challenges as well as any other needs to troubleshoot the solution as the process unfolds. By the conclusion, the reader will not only have a reframed perspective on the issues of a sustainable future, but also a viable path forward and an example “best case scenario” to fully illustrate the potential impact at hand.

Mending the Broken Circles

“Will the circle be unbroken? By and by, Lord, by and by” - Nitty Gritty Dirt Band

I learned about Mitakuye Oyasin (Lakota for all my relations) long before biology professors taught me about “food webs” and “trophic structures”. I traveled to Asia where Buddhists taught me about “interconnectivity” and “co-arising”. Again mitakuye oyasin rang in my heart. Neil DeGrasse Tyson once even said “We are all connected. To the Earth, chemically. To each other, biologically. To the rest of the universe atomically.”. The same message from country to country over and over again.

With all this global cross-cultural talk of interconnectivity, how could we possibly have ended up with such an abusive, divisive global system? These ideas are not new. Or even terribly revolutionary. So why is it that the dominant governments and corporations seem to have built their very foundations in ignorance to the long established connected nature of all things? In this essay, I hope to provide some context to these systems as well as offer solutions growing from this real world context.

Part 1: How did we get here?!

While all the beautiful teachings on interconnectivity listed above are thousands of years old, so is the fear of the “other”. Protestants fight with Catholics because they are “{an}other belief”. When disease enters our body we must fight it because it is “other” than the cells in our body. We even fear our own aging because somehow that imagined older person is “other” than our present selves. But what is this idea of “other” when all things are connected and dependent on each other? The flower cannot grow without the soil, so is the flower “other” than the soil; greedily taking the soil’s moisture for its own? Where does one start and the other begin? What about the negative space around the petals that allow us to see its beautiful form? Is that space part of the flower too? These questions can go on forever, and after many years of looking to Nature and finding absolutely no true boundary of “other” to be found, it is my humble opinion that what we call “other” is actually a symbolic tangle of our relationship with what we also call “death”. A quick reflection on the examples above will illustrate how each bear suggestions of death. We would have no concern for disease if it didn’t have a chance of killing us. The Protestants and the Catholics fear power of the other because that subconsciously suggests death either to their beliefs, or their actual bodies via religious war. Those that buy into this fear freely give power to those that claim to protect them from it and that is exactly how we “got here”.

The examples are manifold. Police around the world get more money than Park’s departments because they “put their lives on the line”. For what? To protect us from the “other”. Western Medicine spread round the world and now controls every aspect of life in the post-COVID world because they are

protecting us from the “other” that is the COVID virus, “anti-maskers/vaxxers”, and the ultimate “other” these can bring: *death*. Again and again, we see apparently limitless resources spent globally to fuel this fear of death and those that claim to protect us from it. Yet, all their protection aside, there has never been an immortal person, so they always fail in the end. But we keep paying them to ease our fear. This nexus of resources, notions of “other”, and misconceptions of death have driven the construction of our human systems; and, to begin to move towards any solution, the nexus needs to be reexamined and untangled. To begin, we need to reexamine the phenomenon of death.

The Illusion of Death

What exactly dies when we die? Do the cells in our body simply vanish into the void and take the resources that built them into oblivion? No. When a thing dies, does more death ripple out from the corpse, killing everything it touches? Again no. If we look at strictly the biology of what we call death, nothing “dies”. Certainly, biology can point to the halting of breath, heartbeat, cellular activity, etc. as markers of “death” however, if you let just a little time pass, these halted systems are restarted with “new owners” in only a matter of hours. In natural conditions, life truly multiplies around the dropped corpse. Microbes in our gut reproduce and spread. Our flesh is eaten by worms and other insects that make eggs from our atoms. The waste from these microbes and insects fertilize plants and fungus who in turn use these atoms to make seeds and spores. So, while the cells in our body stopped briefly, the actions of our decomposers quickly revitalize these atoms back into motion as new animals, fungus, and plant tissue. No death remains. Hence, if we can gaze upon a dead thing with no fear of it being “other than us” we will immediately see that what we call death actually generates more life! Drop 5 worms on a corpse and they will become 100.

Shifting focus, what happens when you wrap something in plastic? No worms. No microbes. What happens when you put a body in a steel casket? No fungus can reclaim the precious nutrients stored in that corpse. These examples are like broken sacred circles. When before the corpse would breakdown and shapeshift into new life, the circle is stopped at a single phase. The phase with the least life (motion) within it. In this example is the first and core teaching on how we can imagine a sustainable future. We need to let go of this illusion of death and the threat of “other” to see the already existent path forward being taught by the decomposers of this planet. We don’t need to invent anything new, or even have less people on the planet, we simply must mend these sacred circles of atoms and uncork the stopper we have put on our microbial ancestors. So, where and when did this cork get shoved into the cycle of decomposition?

The War on Microbes and the Birth of Plastic

Since the adoption of the germ model of medicine, humanity has been aggressively attempting to separate itself from the “other” of microbes: anti-biotics prescribed for every ailment, agriculture dependent on billions of tons of pesticides and fungicides, plastic everywhere because it is the “cleanest”. This was well founded at the time, as some form of microbe was the cause of much historical human suffering. Penicillin has saved countless lives, but again, we see the power this temporary “defeat of death” has on shaping the future of societies when the same medical systems adopted plastic. Plastic as a viable commercial product got its start in the medical industry. Doctors needed a cheap sterile material for single use and had been using expensive glass until the petroleum industry approached them with extremely cheap “waste” from refining gasoline. It was an immediate success economically and medically. This root is important to understand because the #1 protest to ditching plastic, even in commercial arenas, are its medical benefits. The IV bags, the plastic wrap on food and beverages to keep it “clean”, the medical gloves to reduce contamination. Yet again, one needs only look to the recent COVID quarantines to see the deeply entwined nature of medicine and plastic. Restaurants were medically mandated to use single use plastic utensils (also wrapped in unrecyclable plastic film for cleanliness) instead of reusable metal utensils. Every person had to buy plastic masks and face shields. All for medical reasons to “keep the death away.” This anti-microbe mission of plastic and its petroleum by-product brothers is the second teaching hidden in this broken circle.

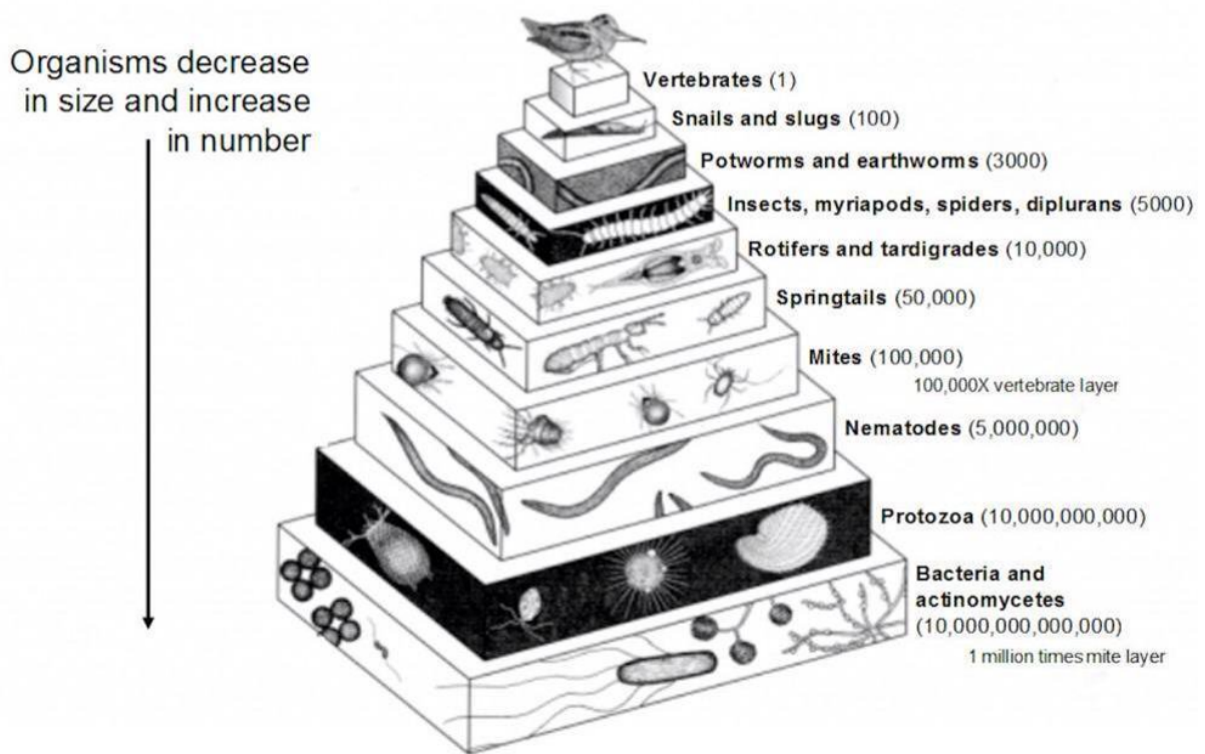
When we are done with plastic it doesn’t go away. As we all know too well it often ends up in the water and then in the bellies of whales and birds. Even there it does not break down and the animals end up starving with bellies full of this deathless and therefore lifeless substance. The sacred circle of their digestion (driven in all of us by genetically “other” microbes), is again broken by this denial of microbial life, and the breaking down they bring. In plastic we can see humanity’s fear of death in its ultimate physical manifestation. We may still die living longer than we ever have, but the thing we used to “protect us” from these threats never will. Hence, no new life will come from it either. These animals dying from the broken circle of plastic also face another threat at the beginning of their lives, from another circle broken by petroleum: the soil circle.

The Invisible Extinction

As established above, plastic and other petroleum products have a sterilizing quality in the way they block the growth of microbes and clog otherwise flowing systems. These products finding their way into the soil and water allow them to continue this effect en masse. We see this in the news as the buzz

word of “mass extinction”. When people discuss this present mass extinction, they give examples of rare birds, beetles, and large cats; however, a far more alarming extinction is going on simultaneously, one of microbes. Most American farmland is totally devoid of microbes, let alone the average American lawn. So, we must pump these environments full of nitrogen based fertilizers and other chemical synthetic products to grow anything at all in the fields. Spills of these chemicals from truck and boat shipping eradicate the microbes from the land and water they are shipped upon and nothing is done to restore the microbes from these areas. In turn, excess nitrogen from farms and lawns also runs off into the oceans and streams, causing more mass die off as this water flows. But how are these microbes and spills related to the larger extinctions? Turning back to biology, it is proven that there must be 10,000,000,000,000 microbes to support any one vertebrate per square feet of soil (see figure 1).

In one square meter of soil....



Hence, it only follows, and has been supported by soil science, that a major reason we are seeing extinctions of vertebrates and loss of viable habitat is because there is an exponentially larger extinction going on beneath the soil driven by an intersection of plastic, chemical fertilizers, and general destruction of soil for human habitats, roadways, and businesses. Less bacteria means, less mites, less

mites means less insects, less insects means less birds, and less birds means less people. We are all connected. Not by the illusion of death, but the reality of ever *flowing* life. So, now reframed, the problem we face is not true death, but a bottleneck of atomic resources caused by the genocide of our decomposer teachers compounded further by the use of plastic to keep them locked up away from us. It is in the befriending of decomposition, therefore, that we will find one of our greatest ways forward into a sustainable future.

Part 2: Breaking Down the Solution

Many solutions to global climate change and plastic waste have been offered. Every day we hear: use less electricity, ditch single use plastic, recycle, don't litter, build new infrastructure, etc. Certainly many of these strategies help; yet, they all place the burden of the solution on everyday people. We must change how we throw things away. We must change what we eat. We must change how we build. This has been the strategy for decades and it clearly isn't working. New inventions are built with petroleum energy just make more industrial waste no matter how "green" they claim to be. Telling people to change root human behavior perpetuates anxiety, guilt, and eventually despair/burnout that prevents us from doing anything at all. Another quick turn to history, it took the Black Death in Europe (50+% mortality rate everywhere in the known world) to generate the idea of trash collection. Even then this idea was not foolproof as we still see trash everywhere. So, even in the face of the largest death event in history, we still did not change our relationship with trash and litter. It seems to me that this strategy of "changing human behavior" actually does nothing but internalize guilt and paralyze people from seeing true solutions. For a beginning to the answer, let's look again at our prehistoric ancestors.

Imagine an early human who has found an orange tree. Delighted, this human picks as many oranges as she can and resumes her walk across the land. As she walks she eats the oranges and "litters" the peels behind her as she goes, spitting the seeds with each finished slice. Microbes in the healthy pre-historic soil feast on the scattered peels and enrich the soil around the spat wet seeds as they break the peels down. Bison or elk churn the soil as they migrate and burry the germinated seeds, again fertilizing it with their microbe rich droppings. In time, there will be a line of orange trees marking our ancestor's path across the land. She was a litterer, and a potentially disease spreading spitter, and the planet thanked her for it. Her "trash" bred more life and will feed her children as they retrace her steps.

Changing What We Throw Away

The parable above hits closer to home when we imagine the same woman today. She buys a plastic bag of oranges from the store that has been modified to have no seeds in it what so ever. That's

already one broken circle. The circle of plant to more plants broken with the removal of seeds. She walks the sidewalk home dropping the peels on sterile concrete or microbe free city dirt. There they sit indefinitely with no microbes or fungus to consume them. Even if she is a “good citizen” and tosses her peels into the garbage can, they end up in a landfill and will be broken down with acids and chemicals into compounds no other plant can use. The second broken circle, the circle of nutrients into new forms. Finally, all oranges gone, she throws the plastic mesh bag away. It doesn’t matter where. It will be here longer than her children’s children’s children. All for the sake of “freshness” or “cleanliness”.

Nothing has changed in this woman’s behavior from pre-history to the grocery store. All that has changed are the things built for her to use. She did not build the streets. Nor did she “build” the gene sequence to remove the oranges seeds. These choices were made in advance for her by the very infrastructure she must live within. So, part one of the solution is changing *what* we throw away, not ending litter all together.

Naturally, there is no going back to the pre-historic world without some kind of apocalypse (how most of the modern media imagines the path forward, unfortunately), but this is simply irresponsible to consider given all our non-human family that would suffer far more than we at such an event. So, how do we harness the *beneficial liter* of our ancestors in a *modern context*? Here is what I imagine.

Firstly, shift all resources and investments from recycling to making all packaging biodegradable and pro-microbe. Recycling is a largely failed experiment globally and recent studies have shown it has actually allowed for greater waste around the world since the 1970’s. Certainly, for the plastic already here, we must engineer recycling solutions as part of cleanup efforts, but for all NEW things (future) the global capital spent on recycling would be much better applied to engineering fully biodegradable plastic alternatives on all fronts. What’s more, these biodegradable materials should not only breakdown, but serve as a kind of compostable nutrient package. In essence, the things we throw away (at least all things presently single use plastic) should be engineered to support microbe growth in the soil or water they end up in. This microbe aspect to the new packaging is vital because, as outlined in section 1, the more we support the invisible microbes in our biome, the faster they will be able to move the “bottle neck” of locked up resources. In short, we need to turn our trash into probiotics for the planet’s digestive system if at all possible. As an indirect benefit, the drastically reduced refining of plastics will fight climate change by removing a major sector of industrial emissions. Petroleum industry people will fight this loss of capital, but if they no longer hold the power of the “myth of death” that their plastic is supposed to be the savior from, this will matter little so long as jobs are created in the new waste system.

Waste Collection

With the ideas of new kinds of waste posited, the next aspect to consider is where they end up. Just a bit of thinking and one will realize that if we send these biodegradable items to conventional landfills or incinerators, nothing will change. These atoms and nutrients will get eaten up by acids or spewed as carbon dioxide into the atmosphere worsening ground water and air quality. We don't need more things being reduced to raw carbon just to become CO₂ in the air, we need to super charge all the microbes so they in turn can super charge the CO₂ drinking plants and algae's of the world. So, the next step is to assure that we have a new system of waste collection and deployment. Already, industrial composting is making headways with this in states like California and Colorado; however, a vast majority of the world's biodegradable waste is not being composted. And what *is* composted often ends up being spread on places of privilege: gardens, boutique organic farms, and personal lawns. So there are two aspects to consider here: 1) how to maximally divert biodegradable waste from landfills, and 2) where to deploy this industrial composting for best effect.

To address the first issue, America (or any given country) needs to shift resources from curbside recycling to composting. This will draw much resistance as people still think their recycling is being recycled (it rarely is, so it's becoming a waste of money and waste collection infrastructure). To address this, educational campaigns about why composting is more viable than modern recycling will be vital. Additionally, people will worry about smell and vermin. To address this, the collection cycle of composting will have to be frequent and robust; all the more reason to shift recycling trucks and pick up schedules to prioritize compost instead. Your recycling will never smell. It can wait. Pick up the composting twice a week, by shifting recycling to monthly. As this nationwide composting effort is designed, the end location of this compost should not be a landfill or Home Depot but instead, the land itself. Ideally, what are called "brownfields".

Brownfields are defined as "a former industrial or commercial site where future use is affected by real or perceived environmental contamination". These sites to me are the future of landfills. In short, one cannot build on these brownfields due to hazards to human health without remediating the contaminated area. I propose that all compost collected from the above imagined curbside collection system will be deployed to brown fields across the nation, completely avoiding landfills altogether. Not all compost is created equal: some is more acidic, some more basic, some with higher nitrogen. So experts could match these composts to the specific needs of any brown field and begin its rejuvenation while also redirecting billions of tons of waste. Luckily, the sacred circle of rain water is not yet broken, so

the run off from these properly composted systems will also work its benefits into the waterways. As mentioned above, the largest challenge will be the way this waste collection system is designed. However, whether it takes a public or private model, we have the existing infrastructure to roll this out. All that needs to be changed is what ends up in the trucks. As a final bonus, due to their set pick-up routes, the compost trucks are also in an ideal situation to be replaced by electric models.

But what about the atmosphere?

With all this talk of trash, waste, and microbes, one might rightly ask about the other non-sustainable elephant in the room: climate change driven by the burning of fossil fuels. Most of these emissions come from industrial production, vehicle use, and building energy consumption, so why start with the microbe problem? Certainly removing the emissions from virgin plastic production will have a major impact, however, the reverberations of a plant based revolution go further than simple industry change.

Looking back to Figure 1. Recall that it takes quadrillions of microbes to support soil health. That means, the more microbes in the soil the more plants we can grow. The more microbes in ocean water, the more Co₂ is “drank” from the atmosphere and the more oxygen is produced. This is exactly why compost and other probiotics work. Now think of trees and forests. With all the talk of clean energy and carbon capture technology, planting trees and prairie grasses are still one of the most viable capturers of carbon known to science. However, if the soil is poor or wildfires never stop, these native grasses and trees can be over taken by opportunistic invasive species and will not live long enough to have this scrubbing effect. Hence, the industrial scale of composting deployed to brownfields and areas in need would “build carbon capture technology for us” by fostering the health and longevity of plant life all over the world. The original carbon capture technology in the first place. What’s more, if these brownfields turned plant nurseries are in urban areas, they can improve air quality for the historically unhealthy neighborhoods they will grow from. Regardless, the key point is to deploy this valuable compost and nutrients to historically “othered” places depleted with neglect: utility corridors, highway esplanades, capped landfills, and prairies and forests in need of support or expansion. As these areas recover and the microbes and fungus of “death” multiply they will suck the carbon from the air to build their very bodies (carbon based life after all) and in doing so, not only clean our air, but also make more and more food for every animal on this planet.

Part 3: Paying for it

The prompt for this essay also requested that we address criticism to the plan and other realistic hang-ups that might come up along the way. After a decade of working in Sustainability in various sectors, I can realistically say the only real hurdle we will need to pass is that of “how are you going to pay for this”. Certainly people have political agendas wrapped up in petroleum investments, political party loyalty to again, investments, and even potentially some biologically constructive notes on the role of methane in compost production; however, all of these melt in the face of a well-funded project. Even worries on the conversion of recycling trucks to composting trucks can seem less daunting if there is solid money involved. So, how would we pay for this?

The Modern Myth of Money

Again, a bit of unpacking of assumptions is needed. Money today is made up. Historically, money was tied to some resource like gold, silver, or even cheese! But that is no longer the case. Economists base value via supply and demand and money serves as tickets to move that notion of debt around. However, money, made up as it is, still moves real resources. Even paying a lawyer for some intellectual service eventually makes its way back to some natural resource. The lawyer may get paid for some theoretical arguing he does for you (it costs him no trees or goats to argue for you) but when he is finished he takes this money and pays for groceries. These groceries include rice which needs wetlands to grow. There are more lawyers now than ever and they all need more rice so we cut down rainforest to make rice patties; hence, the made-up value of the dollar has very real effects on the rain forest. In short, in today's world, *everything* has to do with the price of tea in China.

As a matter of market function, these made up dollars grow exponentially via the stock market and people keep buying rice (real commodities) with this exponentially growing fake resource. Can you imagine a world where the New York Times said “the stock market is halted until the next rain and rice harvest”. Absolutely not. This is because money is fully disarticulated from physical resources if you truly push the concept. A personal story: In 2019 I started watching day traders make money. One man I knew turned \$500 to \$1,000,000 in a single year by working no more than 30 minutes a day. He did this by playing with numbers. We have all heard “buy low sell high” and this is exactly what they do but on a mass, deregulated scale. He would buy \$10,000 worth of a stock at \$1.50 per stock. Wait for the stock market to open, wait until the stock hit, say, \$2.50 and then sell all of it before lunch time. By the end of the day, the stock in question would be back to \$1.00 but this man was now over \$6000 richer due to a fluctuating formula. No new rice patties generated this money for him. No booming herds of animals. He

didn't make new food for anyone. He just caught moments in the market to literally make new spontaneous money regardless of physical resources. This happens every single day on unimaginable scales. Companies do it, your retirement account does it, and everyone making decisions does it.

People who make money like this are the very same people that ask environmentalists "who is going to pay for this". It is a moot question for them. It simply means they don't care, or that the success of the proposed project will destabilize their existing investment strategies, making it harder for them to make \$10,000 every morning with the click of two buttons. Organizations that understand this "magic" of the money market are usually the ones that tend to succeed in this deregulated money market. I propose to fund this nationwide composting project, we simply need to tap into the same money machine the "other" has used.

Investments and Land Use

First off will be the establishing of an endowment and maintenance fund. Quite possibly through organized land acquisition. Instead of raising money just to launch the composting program, additional money should be raised specifically for investments. One park in Houston does it this way. Say you are building a \$100,000 garden. You raise for \$150,000 and invest the supplemental \$50,000 in secure stocks. As this money makes more money, the profits are used to maintain the garden indefinitely by pulling from investment dividends. Essentially, you give each new garden project a trust fund. Luckily, natural growing things require far less trust income than the average yuppie.

This aspect of investment based profit is vital because deploying compost to brownfields will get no "return on investment" or ROI and this must be addressed. Existing composting companies make their ROI by selling the compost to buyers (I.E. the compost is the product) and this is what has diverted these precious nutrients to places of privilege described before. As it stands, the only people who get to foster healthy topsoil are those that can pay for it. In this new model, the ROI will be the lands we rejuvenate.

America is urbanizing. A drive through the middle of the country will show abandoned railroad towns and old road side market areas that have been for sale for decades. It is these areas I would target as phase 1 for the deploying of rejuvenating compost. In short, identify the lowest cost, neglected areas near highways and buy the land. Then deploy the compost in a biologically guided way to begin to restore the beauty of these areas; be they prairie, piney woods, or marshes. Continue this until the area is as beautiful as any park and brand it as a "Pocket Conservation Zone" for the region it is a part of. With this designation, companies then will be able to donate to the part (and the composting company) as

part of their conservation mitigation requirements. For example: Walmart must legally support a wetland ecosystem for every store they build due to a collection of laws relating to storm water. This normally takes the shape of a minimal effort retention pond, however, if the proposed composting company can assure Walmart's money is going to an actually biologically living wetland, this can fill a major market need while supporting the mission of the company.

So in short, the beginning of the composting system will need upfront donors (a squad of savvy day traders) or governmental buy in at the same level as the postal service. From there, the investments will be paid back via stock market maintenance funds and the flowing in of conservation research grants and remediation money given the existing corporate remediation system. Additionally, if the sites of compost deployment become especially successful, the very land can be sold back to the town it was recovered from as drastically improved park land, likely with the best air quality it has ever had.

Part 4: Conclusions and Ripples

All of the above is a dream, but that is exactly what was asked for and exactly why it is a powerful exercise. Admittedly, if it were all so easy, composting companies around the world would be doing this. Additionally, there are so many other areas to consider for a sustainable future. We need to revolutionize transportation and shipping. We need to cool the planet to prevent the acidification and heating of the oceans. We need to deal with the generation of plastic waste that already exists. We need to change how we design and use buildings. The list eventually includes the entire built world. However, that is exactly why I propose the kind of strategy I do. Decomposition is not built. It is not some new invention that will eventually bite us back (like lithium mining for electric cars). Decomposition is the very oldest way to clean this planet. Tried and true over millennia. Decomposition and the relationship of microbes and plants literally built our atmosphere in the first place. Who are we to say our technology will do it better this time? The essence of this entire essay is that nature knows how to solve the problems we face but we are at the point that she requires our help. In short, if we can do nothing to slow the growth and progress of the built human world, we need to help nature keep pace with this growth through the already existing perfect "technology" of nature itself. If industry is super charged, we need to supercharge nature as well, and decomposers are the way to do it.

With all the steps and criticisms of this plan now fully outlined, let's take some time together and "watch" a simulation of the beneficial ripples this project can generate so we can better envision this miracle coming into reality.

Its 2025, and the new composting trucks are rolling across Texas. Every other day they pick up tons and tons of biodegradable waste and take it to an industrial composting facility. The facility is running HOT and bioactivity has compost breaking down invasive weed seeds it picked up along the way. Protozoa and bacteria procreate and tons and tons of compost are thick black and ready to go. A small team of soil scientists treats the general compost to tweak it for coastal tall grass prairie fertilization. A bit more gets tweaked for hill country wild flower support.

This tweaked compost gets loaded into the equivalent of what used to be mulch spraying trucks and they roll out to the Texas highways. This compost is sprayed as the trucks drive along the edge of the highway over soil that was disturbed due to construction and rife with weeds and fire ants that love the depleted dirt. Over time, the compost builds a new layer of top soil and the advanced nutrients bolster native grasses to grow and fight out the invasive soil eroding grasses and pests.

More time passes and the roots of these grasses begins to penetrate, a foot, two feet, six feet into the soil. These grasses drink carbon from the air and draw it deep down into the soil, also filtering and cleaning storm water runoff. This water is diverted from the roads and flooding is reduced along the highways by these far better draining soils and roots. One day, a fire breaks out from a cigarette and the prairie burns. Luckily, because the roots are so far down, the carbon stays underground and the fire does little more than germinate the next spring's wild flowers. No harm done.

This deepening of roots provides food for microbes who then feed mites who then feed grasshoppers. These are eaten by native birds who's populations boom over the decade (mosquito problems are also way down!). Then the Texas economy booms from bird watchers on vacation. A wealthy birder falls in love with a section of prairie and decides to donate to the composting company to assure it says that nice in perpetuity. Her friends like the idea and a few more decide to support the company. The resulting dividends mean the program can now expand to Arkansas.

Meanwhile, the Colorado River's water quality is somehow improving. Scientists trace the drainage flow back to the pocket conservation areas and find that the root systems and microbes of these "parks" is actively scrubbing the road contaminated water before it reaches the rivers. Now fish

populations are booming due to the healthier water. Again, people from all over travel to the bountiful Texas streams for the best fishing around and the economy prospers further.

Air planes still crisscross the sky. Cars still hum down the highway. Plastic still exists recycled through the medical and scientific community. The built world seems unchanged. But all the while the air is getting cleaner due to some “invisible factor” (and underground explosion of microbes). The carbon in the air is slowly being used to build the bodies of microbes and the deep roots of plants. As the prairies expand, the areas around them cool due to their shade and keeping soil moist and allow for rain fall to stabilize. Low and behold, things start to get better.

Again, the above requires no new invention, no new product, no winning of an election, and no dismantling of a system. All that it requires is for us to remember our sacred duty as stewards of the land and soil and begin mending the broken circles we find. A final note on the role of imagining such solutions:

So long as the religions of the world preach to us that we have already lost the Garden of Eden and are heading to fire and brimstone, the more true the religion becomes as the planet burns. It’s a self-fulfilling prophecy. This is exactly why exercises like the above are vital. We need to take back the reigns of the imagination’s role in the future and return to imagining a growing garden of a planet; instead of countless examples of zombie and nuclear apocalypses. As holy books, and even science around the world will show, imagine the right future and the miracles cannot help but follow.